

AMENDMENTS TO THE DRAWINGS

Replacement sheets 1 and 5 including changes to Figs. 1 and 2 and new Fig. 9A are attached at the end of this paper.

REMARKS

This is a response to the Office Action mailed on April 30, 2007, in this application. Claims 1, 3-15, and 17-19 are presented for examination. Claims 2, 16 and 20 are hereby cancelled. Claims 1, 12, and 17 are hereby amended. The drawings have been amended as required by the Examiner, and the specification has been amended to refer to the amended drawings. No new matter has been added by these amendments.

Objections to the Drawings

The Examiner required that the feature “coating layer coated on the surfaces of the protrusion and the protective layer” claimed in claim 3 be shown in a drawing or cancelled. In response, Applicants have amended Drawing Sheet 5 to include a new Fig. 9A showing this coating layer as designated by the numeral 35. Applicants wish to note that this feature was also disclosed verbally in the original specification. See, e.g., the paragraph beginning at page 7, line 9 of the PCT publication (corresponding also to Paragraph 31 of the U.S. publication), where it is disclosed that: “If the protrusion is made of different material to the protective layer 20, it is possible to form a coating layer made of glass, ceramic or polymer resin on the surface of the protective layer 20 and the protrusion(s) . . .” Accordingly, the addition of Fig. 9A, showing in a drawing that which was already described in words, does not constitute new matter.

The Examiner also required that Prior Art labels be affixed to Figures 1 and 2. A replacement sheet for these figures with the required Prior Art labels is attached.

Specification

Applicants have amended the specification (paragraph beginning at page 7, line 9 of the PCT publication) to refer to Fig. 9A and coating layer 35. As noted above, this coating layer was already described verbally in the original version of this paragraph. The amendment only adds a reference to a figure showing the same feature already described, and does not add new matter.

Rejections Under 35 U.S.C. § 112

Claim 3 was rejected under 35 U.S.C. § 112, first paragraph as not enabled. In response, Applicants have amended the drawings to more clearly show how the coating layer claimed in claim 3 coats both the protective layer and the protrusions. It is believed that this rejection has been thereby obviated and should be withdrawn.

Claims 3 and 19 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite. The Examiner pointed in particular to what he characterized as a contradiction between the coating layer and coating step of claims 3 and 19, respectively, and what was shown in the drawings. Applicants have responded by adding Fig. 9A more clearly illustrating the particular coating layer referred to in claims 3 and 19 and verbally described in the original specification. Applicants believe that any apparent contradiction between the figures and claims that may have existed has thereby been resolved, and that this rejection has therefore been obviated and should be withdrawn.

Claims 12-16 were rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential steps.

Claim 12 has been carefully reviewed and amended to address the Examiner's specific comments. Applicants believe that the rejection of claim 12 has therefore been obviated and should be withdrawn, as should the corresponding rejections of dependent claims 13-16.

Claim Objections

Claim 12 was objected to as informal because the term "dice" was used where instead "die" should have been used. Claim 12 has been amended to make this correction.

Claim 12 was also objected to as informal because the last limitation was truncated, ending in the words "so that." This has also been corrected by the amendment of claim 12.

Claim 17 was objected to because the term "**on** the outer surface" (emphasis added) was unclear. The Examiner construed the term "on" as actually meaning "onto," which is quite correct, and is reflected in the present amendment of claim 12, where the term has been changed to "onto."

Claim Rejections Under 35 U.S.C. § 102

Claims 1, 2, and 5 were rejected under 35 U.S.C. § 103(e) as anticipated by Pasch (US 6,404,972).

Claim 1 recites:

1. An optical fiber unit for air blown installation into a tube, comprising:
 - at least one optical fiber having core layer and clad layer;
 - a protective layer coated on a surface of the optical

fiber; and

*a protrusion for receiving fluid drag force when the optical fiber unit is installed with use of blown air, wherein the protrusion is made of polymer resin and formed on an outer surface of the protective layer in a banded shape,
wherein the protrusion is formed discontinuously.*

(Emphasis added.)

Pasch discloses an optical fiber on which colored rings are disposed in order to color-code the fiber, e.g. in order to aid splicing operations. However, the colored rings of Pasch are made so as to “lead[] to a particularly even surface quality of the optical fiber.” Pasch, col. 3, lines 29-30. The thickness of the rings is specified as .5-5 µm, preferably 1-3 µm. This is on the order of the size of a bacterium, and considerably less than the width of a human hair. The disclosure of such rings by Pasch fails to teach the limitation “a protrusion for receiving fluid drag force when the optical fiber is installed with use of blown air” of claim 1. Such rings could hardly be said to “protrude,” and the resulting “particularly even surface quality” would fail to develop the drag force essential to air-blown installation.

Because Pasch fails to teach or disclose all the limitations of claim 1, it cannot anticipate claim 1, and the rejection of claim 1 should be withdrawn. Claim 2 has been cancelled, and therefore its rejection is moot and should be withdrawn. Claim 5 is a dependent claim depending on claim 1, and the rejection of claim 5 should be withdrawn for at least this reason.

Claims 1, 4, 6, 10, and 11 were rejected under 35 U.S.C. § 102(b) as anticipated by Masahiro (JP2001021781). Masahiro discloses an optical cable for air-blown installation which has a *continuous* spiral protrusion (3). Thus, Masahiro fails to teach the limitation of claim 1 “wherein the protrusion is formed discontinuously.” Because Masahiro fails to teach or disclose all the limitations of claim 1, it cannot anticipate claim 1, and this rejection should be withdrawn. Because claims 4, 6, 10, and 11 are dependent claims depending from claim 1, the rejections of these claims should also be withdrawn, for at least this reason.

Claims 1 and 6-9 were rejected under 35 U.S.C. § 102(b) as anticipated by Sowell (US 6,233,384). Sowell discloses a ruggedized fiber optic cable in which an optical fiber is surrounded by various layers of material to add strength, crush-resistance, etc. However, nowhere does Sowell disclose or teach what claim 1 claims, namely “a protrusion for receiving fluid drag force when the optical fiber unit is installed with use of blown air.” The feature of Sowell that the Examiner identifies as a “protrusion,” namely element 6 of Sowell Fig. 1 is not a protrusion at all, but a “jacket” that smoothly covers the entire cable, and thus

completely lacks any protruding elements that could receive drag forces to enable air-blown installation. Because Sowell fails to teach or disclose all the limitations of claim 1, it cannot anticipate claim 1, and this rejection should be withdrawn. Because claims 6-9 are dependent claims depending from claim 1, the rejections of these claims should also be withdrawn, for at least this reason.

Claim 17 was rejected under 35 U.S.C. § 103(e) as anticipated by Sano (US 4,997,256).

Claim 17 claims:

17. A method for manufacturing an optical fiber unit for air blown installation, comprising:

forming a protrusion for receiving fluid drag force when the optical fiber unit is installed with use of blown air
having a banded shape on an outer surface of at least one optical fiber having core layer and clad layer by supplying polymer resin through a nozzle onto the outer surface of the optical fiber while moving the optical fiber along a longitudinal direction thereof,

wherein the protrusion is formed discontinuously by supplying the polymer resin onto the outer surface of the optical fiber discontinuously.

(Emphasis added)

Sano teaches a fiber optic unit comprising a foamed outer sheath 4, a prior art type of air-blown fiber unit that was described in the Background of the Invention section of the present application. (See paragraph beginning at page 2, line 20 of the PCT publication.).

Nowhere does Sano disclose or teach what claim 17 claims, namely “forming a protrusion for receiving fluid drag force when the optical fiber unit is installed with use of blown air.” The feature of Sano that the Examiner identifies as a “protrusion,” namely element 33 of Sano is actually a sheath within the cable structure that would not at all be exposed to blowing air, and thus would not have any role in facilitating air-blown installation. No protruding, drag force-receiving structures of any kind are disclosed in Sano. Because Sano fails to teach or disclose all the limitations of claim 17, it cannot anticipate claim 17, and this rejection should be withdrawn.

Claim Rejections Under 35 U.S.C. § 103

Claim 18 was rejected under 35 U.S.C. § 103(a) as obvious over Sano in view of Masahiro. Claim 18 is a dependent claim depending from claim 17, which, as discussed above, is patentable. Therefore, the rejection of claim 18 should be withdrawn, for at least this reason.

Claim 20 was rejected under 35 U.S.C. § 103(a) as obvious over Sano in view of Pasch. Claim 20 has been cancelled. The rejection of claim 20 is therefore moot and should be withdrawn.

Conclusion

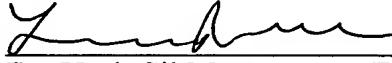
In view of the above, applicants respectfully submit that the present application is in condition for allowance. A favorable disposition to that effect is respectfully requested.

No fee is believed to be due for this submission, other than the fee for a one-month extension of time detailed in the accompanying Petition for Extension of time. Please charge any fee that may be due or credit any overpayment to Jones Day Deposit Account No. 50-3013.

Should the Examiner have any questions or comments concerning this submission, he is invited to call the undersigned at the phone number listed below.

Respectfully submitted,

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